

# NGUYEN Quang-Duy



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## Education

- 2017 – 2020 **PhD in Computer Science**  
École Doctorale des Sciences Pour l'Ingénieur, University Clermont-Auvergne, France  
UR TSCF, MathNUM département, INRAE (Irstea), Clermont-Ferrand, France  
*PhD defense : 16/07/2020*
- 2014 – 2015 **Master 2 in Networks and Communicating Systems**  
University Claude Bernard Lyon I, France  
*Note : 15.31/20.00 - Rank : 1/60*
- 2013 – 2014 **Master 1 in Computer Science**  
Institut de la Francophonie pour l'Informatique (IFI), Hanoi, Vietnam  
*Note : 14.20/20.00*
- 2007 – 2012 **Engineer of Information Technology in Computer Engineering**  
Hanoi University of Science and Technology, Vietnam  
*Note : 14.96/20.00*

## Experience

- 12/2021 – present **Postdoctoral Researcher**  
LSEA laboratory, CEA List, Palaiseau, France  
*Project : Tools and Methods for System Complex Engineering in Industrie 4.0*  
*Keywords : I4.0, LocalSEA testbed, OPC UA, TurtleBot3, Niryo Ned, ROS*
- 10/2020 – 09/2021 **Postdoctoral Researcher**  
LTCL laboratory, Télécom-Paris, Palaiseau  
*Project : OPC-UA PubSub for Caméléon*  
*Keywords : IIoT, SNCF, OPC UA PubSub, Embedded System, Zephyr OS, Node-RED, C*
- 01/2017 – 07/2020 **PhD Student**  
UR TSCF, MathNUM département, INRAE  
*Project : ConnecSens, AgroTechnoPôle*  
*Keywords : Agriculture, IoT, Ontology, Reasoning, OWL, SWRL, Java, Python*
- 08/2016 – 10/2016 **Research Engineer**  
Programmation, Networks and Systems team, LaBRI laboratory, Bordeaux, France  
*Project : Le Palais de la Mémoire*  
*Keywords : Sounds, Method of Loci, Distributed Algorithms, Beacons, BLE, Android*
- 04/2015 – 07/2016 **Master 2 Intern / Research Engineer**  
Networks team, ICube laboratory, Strasbourg, France  
*Project : FIT/IoT-lab*  
*Keywords : Multihoming, Mobility, Contiki, TelosB, Python, C/C++*
- 01/2014 – 07/2014 **Master 1 Intern**  
Institute Francophone for Information Technology  
*Project : Modeling and Diffusion of Mobile Users Profile*  
*Keywords : Participative Detection, Modeling, Android, GAMA Platform, GAML*

## Publications\*

[CI.9] **Quang-Duy Nguyen**, Saadia Dhouib, and Patrick Bellot, "A Unified Method to Design Bridges for OPC UA PubSub Networks", Proceedings of the 13rd International Conference on Complex Systems Design & Management (CSD&M 2022), Paris, France, 12/2022 (In Review)

[CI.8] **Quang-Duy Nguyen**, Saadia Dhouib, Yining Huang, and Patrick Bellot, "Bridging OPC UA, ROS, and ROS 2 in Robotic Testbeds for Industry 4.0", Proceedings of the 16th International Symposium on Distributed Autonomous Robotic Systems (DARS 2022), Montbéliard, France, 11/2022 (In Review)

[CI.7] **Quang-Duy Nguyen**, Saadia Dhouib, Kunal Suri, and Fadwa Tmar, "From Requirement Specification to OPC UA Information Model Design : A Product Assembly Line Monitoring Case Study", Proceedings of the 20th IEEE International Conference on Industrial Informatics (INDIN 2022), Perth, Australia, 07/2022

[CI.6] **Quang-Duy Nguyen**, Patrick Bellot, and Pierre-Yves Petton, "An OPC UA PubSub Implementation Approach for Memory-Constrained Sensor Devices", Proceedings of the 31st IEEE International Symposium on Industrial Electronics (ISIE 2022), Anchorage, United States, 06/2022

[CI.5] **Quang-Duy Nguyen**, Fadwa Tmar, Yining Huang, and Saadia Dhouib, "Early Lessons Learned from the Development of a Local OPC UA-based Robotic Testbed for Research", Proceedings of the 31st IEEE International Symposium on Industrial Electronics (ISIE 2022), Anchorage, 06/2022

[CI.4] **Quang-Duy Nguyen**, Saadia Dhouib, Jean-Pierre Chanet, and Patrick Bellot, "Towards a Web-of-Things Approach for OPC UA Field Device Discovery in the Industrial IoT", Proceedings of the 18th IEEE International Conference on Factory Communication Systems (WFCS 2022), Pavia, Italy, 04/2022

[CI.3] **Quang-Duy Nguyen**, Catherine Roussey, Patrick Bellot, and Jean-Pierre Chanet, "Stack of Services for Context-Aware Systems : An Internet-Of-Things System Design Approach", Proceedings of the 15th IEEE International Conference on Computing and Communication Technologies (RIVF 2021), Hanoi, 08/2021

[JI.2] Julian Eduardo Plazas, Sandro Bimonte, Christophe de Vault, Michel Schneider, **Quang-Duy Nguyen**, Jean-Pierre Chanet, Hongling Shi, Kun Mean Hou, and Juan Carlos Corrales, "A Conceptual Data Model and its Automatic Implementation for IoT-Based BI Applications : UML Profile and MDA Approach", IEEE Internet of Things Journal, 10/2020

[T.1] **Quang-Duy Nguyen**, "Interoperability and Upgradability Improvement for Context-Aware Systems in Agriculture 4.0", PhD thesis, University Clermont-Auvergne, France, 07/2020

[CF.2] **Quang-Duy Nguyen**, Catherine Roussey, Maria Poveda-Villalón, Christophe de Vault, Jean-Pierre Chanet, and Camille Noûs, "CASO et IRRIG deux ontologies pour le développement de systèmes contextuels : cas d'usage sur l'automatisation de l'irrigation", Actes des 31es journées francophones d'Ingénierie des Connaissances (IC 2020), Angers, France, 07/2020

[JI.1] **Quang-Duy Nguyen**, Catherine Roussey, Maria Poveda-Villalón, Christophe de Vault, and Jean-Pierre Chanet, "Development Experience of a Context-Aware System for Smart Irrigation using CASO and IRRIG ontologies", Special Issue "Semantic Technologies Applied to Agriculture", MDPI Applied Sciences Journal, 03/2020.

[CI.2] Maria Poveda-Villalón, **Quang-Duy Nguyen**, Catherine Roussey, Christophe de Vault, and Jean-Pierre Chanet, "Ontological Requirement Specification for Smart Irrigation Systems : A SOSA/SSN and SAREF Comparison", Proceedings of the 9th International Semantic Sensor Networks Workshop, 17th International Semantic Web Conference (ISWC 2018), Monterey, United States, 10/2018

[CF.1] Maria Poveda-Villalón, **Quang-Duy Nguyen**, Catherine Roussey, Christophe de Vault, and Jean-Pierre Chanet, "Besoins ontologiques d'un système d'irrigation intelligent : Comparaison entre SSN et SAREF", Actes des 29es journées francophones d'Ingénierie des Connaissances (IC 2018), Nancy, France, 07/2020

[CI.1] **Quang-Duy Nguyen**, Julien Montavont, Nicolas Montavont, and Thomas Noël, "RPL Border Router Redundancy in the Internet of Things", Proceedings of the 15th International Conference on Ad-Hoc Networks and Wireless (ADHOC-NOW 2016), Lille, France, 07/2016

### Summary

First-authored items : 9/12+2

Citations : 35

H-index : 4

I-index : 2

Items by domains of interest :

IoT (6), I4.0 (3), WSN (4),

OPC UA (4), KR&R (5)

Source: Google Scholar

## Research Skills

Project Management	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
System Implementation	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Scientific Writing	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Presentation	■ ■ ■ ■ ■ ■ ■ ■ ■ ■

## Linguistic

French	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
English	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Vietnamese	■ ■ ■ ■ ■ ■ ■ ■ ■ ■

## Technical Skills

Methodology	Mini-Waterfall, LOT, Agile
Operating System	Linux, Zephyr, Contiki, Android
Network Protocol	TCP/IP, OPC UA PubSub, MQTT
Vocabulary	SOSA/SSN, CASO, IRRIG, AAS
Standard	IEC62541, ISA-95, Sparkplug B
Tool	Protégé, Wireshark, GIT, Latex

## Programming

C/C++	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Java	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Python	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Shell script	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Query language	■ ■ ■ ■ ■ ■ ■ ■ ■ ■

## References

- **Dr. Saadia DHOUB**, Senior researcher and project manager in LSEA, DILS department,CEA List  
*Direct supervisor in the project "Tools and Methods for System Complex Engineering in Industrie 4.0"*  
✉ saadia.dhouib@cea.fr
- **Prof. Patrick BELLOT**, Director of the CCN team of LTCl, INFRES department, Télécom-Paris  
*Direct supervisor in the project "OPC UA PubSub for Caméléon"*  
✉ patrick.bellot@telecom-paris.fr
- **Dr. Jean-Pierre CHANET**, Director of UR TSCF, MathNUM department, INRAE  
*Director of the thesis "Interoperability and Upgradability Improvement for Context-Aware Systems in Agriculture 4.0"*  
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